

VII. DESCRIPTION OF
APHIOCHAETA FERRUGINEA,
A HITHERTO UNDESCRIBED SPECIES
OF PHORIDAE THAT CAUSES
MYIASIS IN MAN.

By E. BRUNETTI.

In the autumn of 1907 I bred a number of specimens of a species of Phoridae from the body of a newly-dead lizard (*Calotes versicolor*, Daud.). This was not intentional, but as no spirit was handy to preserve the lizard, the bottle remained uncorked for a few days, but was closed up as soon as signs were perceived that young larvae were developing.

When the flies appeared, the majority were removed and pinned, and the bottle recorked, but a few were seen to remain, and from these a second generation was bred which emerged August 23—27, 1907. Some notes were kept at the time, but these have been mislaid.

Unfortunately no description of the species was published but a few specimens were sent out to various correspondents under the name of *Aphiochaeta ferruginea*, and it now appears that the species has been recognized to exist in many parts of the tropics outside the Orient.

Mr. F. M. Howlett figures it in Lefroy's "Indian Insect Life," and also Col. A. Alcock in his "Entomology for Medical Officers;" and from co-types sent by the Indian Museum to the British Museum, Mr. E. E. Austen has identified as this species, specimens in the National Collection from West Africa and Central America, in addition to those from Oriental localities. He also records it from Sierra Leone and British Honduras, so that it is apparently generally distributed throughout the whole tropical zone.

From the fact that it has been proved to attack man, infesting the intestines and even able to complete its life cycle as an internal human parasite, considerable interest has centred round it recently, and more than once enquiries have been made of me for the published description. As a matter of fact it has till now been merely a *nomen nudum*, but a belated full description is now provided.

In the Indian Museum are the remains of one or two examples which were sent to that Institution by Dr. Crombie, 5-xi-91, having been "reared from eggs passed with the excrement of a European in Rangoon, eggs, grubs and flies being all voided

together." They were sent to the late M. Bigot for identification, and he returned them as "*? Phora bicolor*, Sch." *P. bicolor*, Sch., renamed *meigeni*, Becher, by this latter author, is now referred to *Aphiochaeta*, and is a species with a reddish brown to blackish thorax and bare arista, and must be, I think, different from my species, although they are evidently closely allied. However, so far as can be ascertained from the remains of Dr. Crombie's specimens, it seems highly probable that they belong to *ferruginea*.

***Aphiochaeta ferruginea*, mihi.**

♂ ♀. India, Ceylon. Long. $2\frac{1}{4}$ —3 mm.

Head.—Brownish yellow, yellowish, often more or less tinged with grey, sometimes entirely greyish. Eyes black, microscopically pubescent, posterior orbit with a row of short black bristles; two strong macrochaetae below the lower angle of each eye, and a vertical row of short bristles on the cheeks. Antennae pale yellowish, varying to brownish yellow, arista long and microscopically pubescent. Palpi brownish yellow or yellowish, with several shorter bristles on outer side, a few hairs on inner side and five or six separated strong spines towards the tip. Frons generally concolorous but sometimes with brownish irregular marks in the middle on a yellowish ground colour, the vertical impressed line sometimes very distinct. The frons is furnished with four rows of four macrochaetae in each. The upper or vertical row are reclinate, equidistant, the outer ones at the upper angles of the eyes, the median pair on the inner side of the two upper ocelli, and slightly below the vertical margin. Behind the vertical margin is a bristle on each side, almost immediately contiguous to the outer bristle of the vertical row. These post-vertical bristles are convergent. The 2nd row is just below the lower ocellus, and consists of four equidistant bristles, the median pair fractionally but perceptibly higher on the frons than the outer ones. The bristles in this row are generally reclinate but sometimes are almost at right angles to the frons. The 3rd and 4th rows are so composed as to almost make a single semicircular row of eight. They probably, however, represent two rows of four each, those forming the 3rd row placed thus: the outer pair near the eyes as usual (and immediately under the outer ones of the 2nd row but rather more distant vertically from them than these latter are from the vertical or 1st row); the inner bristles rather closer than usual to the outer ones, leaving a wide space of the frons between the inner pair, which latter are much lower on the frons than the outer pair. Of this row, the outer ones are always reclinate, but the median ones are often more nearly horizontal.

The 4th row is placed wholly on the middle of the frons in a short semicircle, the two median ones the lowest, and the outer ones still proximad of the median pair of the 3rd row. Of this 4th row, the outer ones are more or less horizontal, the median pair always very distinctly proclinate.

In some specimens the outer pair of the 3rd row are rather further removed from the median pair, and in this case these latter alone may be considered as forming the 3rd row, and the median pair, with the outer two of my fourth row, as forming a row of four representing the 4th row. There would then be a pair of additional proclinate median bristles below this fourth row. The previous interpretation of their arrangement is apparently the truer one.

Thorax.—Generally bright ferrugineous or brownish yellow, varying in shades and with or without an admixture of grey: occasionally with two faint greyish dorsal lines. Some strong bristles of unequal length and number laterally from the shoulders (where there is always one strong humeral bristle) to the posterior corners, there being generally four towards the hinder border of the dorsum. Some stronger ones in front of the wings; three small ones close together near the fore coxae, a fan-shaped row of six or more small but distinct ones at the extreme base of the costa, and a similar row behind the base of the wing. Sides of thorax rather lighter; scutellum concolorous, with four strong bristles, the outer pair usually the larger.

The whole surface of the thoracic and scutellar dorsum is covered with minute stiff bristles.

Abdomen.—Dark ferrugineous or brownish yellow, practically bare and *very variable*. Normally brownish yellow, the posterior half (or thereabouts) of each segment black or blackish, but this colour sometimes occupies the greater part or whole of one or more segments; in some specimens a clearer space, more or less oval in shape, remains in the centre of the segments; or the abdomen may be wholly black or blackish, with or without pale edges to the segments, this character itself being present or absent irrespective of other coloration.

Sometimes the abdomen is black or dark reddish ferruginous with the centre part generally pale, forming a light wide irregular dorsal stripe. Belly generally brownish yellow or some kindred shade.

Genitalia in ♂ dark, not prominent, bluntly conical, with a few hairs; in ♀ the ovipositor is subcylindrical, pale yellowish, with two stiff hairs at tip.

Legs.—Pale dirty yellow, minutely pubescent. Coxae with some strong black bristles at tip. Femora without distinct bristles, the hind pair are often paler in colour, and are generally blackish towards the tips, often only very slightly so. Tibiae with a distinct row of short bristles on outer side, the four posterior tibiae with two terminal spurs, the hind pair having a close row of very minute hairs on the outer side, adjacent to the row of bristles. Tarsi slightly blackish.

Wings.—Pale yellowish, a little iridescent, costal border shortly bristly with two divaricating rows as far as the tip of the 3rd longitudinal vein, which, shortly forked, reaches about the middle of the wing, the 1st longitudinal ending just beyond the

middle of the costal cell. Of the light veins, all of which attain the wing-margin, the 1st takes a single, distinct curve upward, the 2nd and 3rd are moderately bisinuate (sometimes much less so), the 4th is nearly straight. Halteres pale yellow.

Described from a good series (mostly ♀ ♀), bred by me in Calcutta from a dead lizard (*Calotes versicolor*, Daud.) which had remained for a day or two in an empty pickle bottle. The first generation appeared early in August and the imagines, not being all removed for a few days, a second generation, bred from the first, appeared from August 23rd to 27th. The description also embodies the examination of a short series bred in the Indian Museum from a water beetle (*Cybister limbatus*, F.) taken at Raniganj (Bengal), these specimens emerging 22 and 23-vii-08. A few other specimens in the Museum collection, and in my own, from various parts of India, have also been examined, from Sylhet, 8-i-05; 23-ii-05, 18-iii-05, [Major Hall]; Calcutta, 21-25-ii-07; and I have one ♂ from Peradeniya (1,500 ft.), Ceylon, taken November 1907.

Notes.—This species is very variable in colour, ranging from bright ferruginous to grey, the proportion of black on the abdomen totally altering the general appearance of the insect. The species, however, once well understood, is tolerably easy to recognize, and is apparently of almost world-wide distribution throughout the tropical regions and probably some adjacent portions of the temperate zone also.
